

## CLAIMS

1. An optimum command producing apparatus for inputting a command, processing the command in such a manner that a control object implements a desirable operation and outputting an optimum command value to a servo control apparatus, comprising:

an N-order filter processing section for carrying out an N-order filter processing for the command and calculating values from a 1-rank differential to an (N-1)-rank differential of the command subjected to the filter processing, and an arithmetic unit for adding a value obtained by multiplying an output of the N-order filter processing section by a gain.

2. An optimum command producing apparatus for inputting a command, processing the command in such a manner that a control object implements a desirable operation and outputting an optimum command value to a servo control apparatus, comprising:

an N-order filter processing section for carrying out an N-order filter processing for the command and calculating values from a 1-rank differential to an (N-1)-rank differential of the command subjected to the filter processing, an arithmetic unit for adding a value obtained by multiplying an output of the N-order filter processing section by a gain, and an M-order filter processing section for carrying out an M-order filter processing over respective variables output from the arithmetic unit again.

3. An optimum command producing apparatus for inputting a command, processing the command in such a manner that a control object implements a desirable operation and outputting an optimum command value to a servo control apparatus, comprising:

an N-order filter processing section for carrying out an N-order filter processing for the command and calculating values from a 1-rank differential to an L-rank differential of the command subjected to the filter processing, and an

arithmetic unit for multiplying, by a gain, the values from the 1-rank differential to the L-rank differential to be outputs of the N-order filter processing section respectively and then adding all of them up.

4. The optimum command producing apparatus according to claim 3, wherein a value of L of the L-rank differential is an order of a model for approximating the control object.

5. The optimum command producing apparatus according to claim 3, wherein a recursive type filter or a non-recursive type filter is used for the N-order filter and an order N of the N-order filter is set to be an order or more which is necessary for converting the command to be L-rank differentiable.

6. The optimum command producing apparatus according to claim 1, wherein the optimum command value is one of a position command, a speed command, an acceleration command and a torque command or a combination thereof.